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PATTERN OF INDUSTRIALISATION AND INDUSTRIAL PERFORMANCE
IN UTTARANCHAL : A PRELIMINARY NOTE



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Introduction

The Uttaranchal, comprising of eight districts, is situated in the northern part of the state of Uttar Pradesh. The geographical area of the entire Uttaranchal is 51.25 thousand sq kms. Out of which 841.97 thousand hectares is under cultivation. The population of the region as per 1991 census is 5.87 million which constitutes around 4 per cent population of the state. The main occupation of 77 per cent workers in the region is agriculture and 92 per cent of the population depends on it for their livelihood. However, the cultivated land area in Uttaranchal constitutes only 12.52 per cent of the total geographical area and a large part of it is under forest cover (63.77 per cent). The average size of land holdings are very small (0.99 hectares) and per cultivator net area sown is 0.61 hectare as against 0.91 hectare for state as a whole. Also 60 per cent of the operational land holdings in the region are less than one hectare and 94 per cent are less than three hectares.

However, the intensity of cropping in Uttaranchal is recorded to be marginally higher as compared to state average but the average yield rates of foodgrains per hectare of land (14.60 qtls)

are less than the state average (15.09 qtls). Several factors like poor irrigation facilities, lack of proper and sufficient use of fertilizers and other geographical problems are also associated with the low levels of agricultural productivity in the region. The net irrigated area in Uttaranchal is not even one-third of the cultivated area while the corresponding figure for state accounts for around 59 per cent. Accordingly, the percentage of gross irrigated area to gross cropped area in the region is only around 32 per cent as against 51 per cent in the state. The per hectare consumption of fertilizers is estimated to be 62.6 kgs in the region while the corresponding figure for state is 78 kgs. Moreover, farming in the region is carried out using traditional methods with outdated technology, as a result only the top soil gets cultivated over and over again. The modern advanced technology used in farming system cannot be applied in the region because of the nature of terrain, scattered, marginal and steep slopy land holdings.

In such a peculiar situation of geographical conditions and poor availability of infrastructure development facilities in Uttaranchal the development of agriculture and the possibility to increase the per hectare land productivity is rather difficult. Therefore, the yield rates of agricultural products are not increasing in proportion to the cost of farming. The agricultural activity is, therefore, considered to be an uneconomic occupation. Due to non-availability of employment opportunities in other economic activities and occupations in the region the workforce is forced to fall back on agricultural activities. However, what is

quite obvious is that the stagnation in agricultural production is not going to prove helpful in creating an increasing level of employment opportunities in the region. Unless the farmers are motivated to take initiatives in favour of changing the cropping pattern by shifting their available land area from the cultivation of low earning traditional agricultural crops to the cultivation of high value commercial crops like fruits, vegetables, medicinal plants, etc.¹

In such a situation of uneconomic nature of farming and lesser absorption capacity of agriculture sector to employ the increasing workforce gainfully in the region the industrial sector can play an instrumental role in this regard. The region has, fortunately the availability of various kinds of natural resources and have varied climatic conditions suitable for the establishment of local raw material based industries as well as dynamically very sophisticated industries like electronics and electrical equipments, etc.

The Study

In this light the present paper attempts to highlight some salient features of industrial development in Uttaranchal based on the structure of different categories of industries, industrial performance, entrepreneurship pattern in industries, pattern of labour absorption in the different economic sectors in general and in industrial sector in particular and the contribution of manufacturing sector in the domestic output, etc.

Absorption of Labour-force

The agricultural activity is the main occupation of a majority of labourforce both in Uttaranchal as well as the state. However, the concentration of labourforce in agriculture is comparably larger at state level (74.55 per cent) than in the Uttaranchal (69 per cent). But, both at state level as well as in Uttaranchal the proportion of workers employed in agriculture sector has been decreasing considerably, though the decrease has been higher in Uttaranchal (8 per cent) than the state level (3 per cent). Across the districts in Uttaranchal, the proportion of workers employed in agriculture has declined by as high as 10.28 per cent in district Almora whereas it was only 2.45 per cent in district Pithoragarh between 1971 and 1981. Similarly, the pattern of labour absorption in manufacturing sector, which is employing only about 2 per cent of workforce in Uttaranchal and around 4 per cent workforce at state level, is also following the same trend as revealed in case of agriculture sector. In all the districts of Uttaranchal the proportion of labourforce employed in manufacturing sector has been declining over the year. The decrease in labour absorption was found highest in district Dehradun (8 per cent) followed by 5 per cent in district Nainital while in remaining districts the corresponding figure constitutes below one per cent level. In all, the employment absorption rate in manufacturing in Uttaranchal has reduced by 2.19 per cent as against 3.59 per cent at the state level (Table 1). A very notable picture is further found emerging in the pattern of labour absorption in different economic sectors across the districts in

Uttaranchal and at state level. That, in both productive sectors, ie, agriculture and manufacturing, the concentration of workers has been reducing at significant level and the shift of workers from these sectors have been unprecedentedly increasing in the service sector. While the development theory postulates the fact that the diversification and the development of manufacturing sector are the factors which are greatly, directly or indirectly associated with the expansion of service sector. And the positive

Table 1 : Percentage Distribution of Workers by Sector of Employment

District	1971			1981			% Change		
	Agric- ulture & All- ieds	Manu- fact- uring	Others	Agric- ulture & All- ieds	Manu- fact- uring	Others	Agric- ulture & All- ieds	Manu- fact- uring	Others
Almora	85.11	1.88	13.01	74.83	1.54	23.63	-10.28	-0.34	10.62
Pithoragarh	81.21	2.57	16.22	78.76	2.19	19.05	- 2.45	-0.38	2.83
Dehradun	38.90	9.45	51.65	35.88	1.28	62.84	- 3.02	-8.17	11.19
Garhwal	80.93	1.48	17.59	72.27	0.91	26.82	- 8.66	-0.57	9.23
Chamoli	87.14	2.04	10.82	81.26	1.95	16.79	- 5.88	-0.09	5.97
Nainital	68.39	7.17	24.42	63.79	2.01	34.20	- 4.60	-5.18	9.78
Tehri Garhwal	92.19	1.60	6.21	85.39	0.70	13.91	- 6.80	-0.90	7.70
Uttar- Kashi	88.44	1.81	9.75	79.28	1.08	19.64	- 9.16	-0.73	9.89
Uttar- anchal	76.90	3.68	19.42	69.32	1.49	29.19	- 7.58	-2.19	9.77
U.P.	77.99	7.28	14.73	74.55	3.69	21.76	- 3.44	-3.59	7.03

Source : Census of India, Uttar Pradesh, General Population Tables, 1971 and 1981

association between the development of manufacturing and service sectors is the favourable indicator of development. Besides this, one leading theory is that economic development manifests a rise in the relative share in the contribution of manufacturing (secondary) sector and a relative decline in the contribution in the agriculture (primary) sector.² Thus, the increase of around 10 per cent workers in service sector (tertiary sector) and a relative decline in both agriculture (primary) and manufacturing (secondary sector) is indicating about the true signs of the backwardness and underdevelopment of the economy of the Uttaranchal.

Contribution of Manufacturing Sector

It is witnessed that the manufacturing sector is playing a negligible role in the absorption of available labourforce in the Uttaranchal. As a result this sector can not be expected to contribute much in the development of the region. This can be seen through analysing the percentage share of manufacturing sector in the net domestic output and the number of persons employed in this sector per lakh of population in the region. The figure of the number of persons employed per lakh of population in Uttaranchal is estimated to be only 441 as against 681 persons at state level. However, the corresponding figure for district Dehradun and Nainital, where a large part of area is in the plains, is estimated as high at 1194 and 932 respectively while in all the hilly districts it is not even touching the mark of 100 persons and the lowest ratio is observed in case of Tehri Garhwal (29 persons) followed by Garhwal (38 persons, Uttar Kashi (42 persons), Almora (78 persons) and Pithoragarh (88 persons).

The percentage share of manufacturing sector in the net domestic output of the Uttaranchal is only 11 per cent as against 22 per cent at state level. However, the manufacturing sector is seen contributing very sizeable proportion in Dehradun district where its share has been recorded around 45 per cent. Otherwise in all the districts of Uttaranchal, excepting Nainital (11 per cent), the contribution of manufacturing sector to the net domestic output is observed to be less than 10 per cent.

Table 2 : Contribution of Manufacturing Sector in Domestic Output and Workers Absorption in Uttaranchal

District/ Region	No. of Persons in Registered Factory(per lakh of population)	% Contribution of Mfg. Sector to Total Dome- stic Output	Value Added per Worker (Rs.)
Almora	78	6.3	32,340
Pithoragarh	88	5.0	14,830
Dehradun	1194	44.4	12,770
Garhwal	38	3.3	10,500
Chamoli	-	4.2	-
Nainital	932	11.2	14,620
Tehri Garhwal	29	3.4	270
Uttar Kashi	42	4.4	9,300
Uttaranchal	441	11.11	14,120
Uttar Pradesh	682	22.00	12,480

Source : Districtwise Indicators of Development, Area Planning Division, State Planning Institute, Uttar Pradesh, 1986.

The value added per worker in the manufacturing sector in Uttaranchal is estimated to be Rs.14,120 which is around 13 per

cent higher than the state average. Excepting the case of Tehri Garhwal (Rs.270) Uttar Kashi (Rs.9,300) and Garhwal (Rs.10,500) the figure of value added per worker is indicated to be much higher for all districts than the state average. And across the district, the corresponding figure of districts Almora and Pithoragarh is much higher as compared to either Dehradun or Nainital which are industrially advanced districts of Uttaranchal. This indicates that in Uttaranchal in general and in purely hilly districts in particular, the manufacturing industries are functioning at household level which are mainly using labour intensive technologies in their production processes. And thus, the workers employed in these lower intensive manufacturing activities are generating comparatively much higher amount of income than the activities using capital intensive technologies in Uttaranchal. Thus, looking at the favourable comparative advantages of labour intensive technology than the capital intensive technology in the manufacturing activities it can be suggested that the industrialisation in Uttaranchal can be initiated through the development and expansion of the small scale enterprises by providing necessary facilities and incentives needed for their growth and expansion rather than think in terms of the establishment of large industries which are based on capital intensive technology. This is also important from the view point that in Uttaranchal abundance of labourforce, mainly unskilled labourforce, is available which can be gainfully and properly utilized and this process could be helpful not only to increase the income level of their households in the region but

also it can check the unprecedented increasing volume of migration of the labourforce outside the region.

Structure of Industrialisation

Several attempts have been initiated towards the industrial development in the Uttaranchal under the various planned development strategies during past. The entire region has been categorised as industrially backward area, even most of the districts of Uttaranchal are categorised as zero industry districts. And the people willing to establish industry in the region are entitled to several kinds of facilities and incentives which are applicable to new industries in an industrially backward area. To attract more and more industries in the Uttaranchal the facility like transport subsidy is also additionally being provided.

In spite of having the availability of various kinds of raw materials in abundance and the provisions of various facilities and incentives as announced by the Government under its policy measures in favour of the promotion of industrial development in Uttaranchal the region has remained industrially backward till today. In fact, no industry is located in the district Uttar Kashi and Chamoli. In the region, only around 14 per cent of the total registered industries of the state are located. Of which over 87 per cent industries alone are located in district Nainital and Dehradun. The productwise classification of industries reveals that in Uttaranchal, a majority of industries are manufacturing miscellaneous products (39 per cent) followed by foods and foodproducts (27 per cent) and electrical items (12 per

cent) while only 7 per cent are repairing factories and remaining 5 per cent units are the manufacturer of oil products, cotton textiles and paper products including the printing of paper (Table 3). However, the industries located in the purely hilly districts are mainly manufacturing the miscellaneous products excepting four industries in Pauri and three industries in Almora are engaged in the manufacture of food products and chemical products respectively, beside the manufacture of miscellaneous products.

Table 3 : Productionwise Classification of Industries in the Uttaranchal

District	Type of Industry								All Industries
	Foods & Food Products	Oil & Oil Products	Cotton Textiles	Paper products & printings	Chemicals	Electricals	Repairing services	Others	
Nainital	57 (48.30)	-	3 (2.54)	4 (3.38)	3 (2.54)	3 (2.54)	11 (9.32)	37 (31.35)	118 (100.0)
Almora	-	-	-	-	3 (27.27)	-	-	8 (72.73)	11 (100.0)
Pithoragarh	-	-	-	-	-	-	-	3	3
Tehri Garhwal	-	-	-	-	-	-	-	7	7
Pauri Garhwal	4 (44.44)	-	-	-	-	-	-	5 (55.56)	9 (100.0)
Dehradun	6 (5.94)	3 (2.97)	-	4 (3.96)	16 (15.84)	28 (27.72)	6 (5.94)	38 (37.62)	101 (100.0)
Uttarkhand	67 (26.90)	3 (1.20)	3 (1.20)	8 (3.21)	22 (8.83)	31 (12.44)	17 (6.82)	98 (39.35)	249 (100.0)

Source : Annual Survey of Industry, Economics and Statistics Division, State Planning Institute, Govt. of U.P., 1985-86.

Ownership in the Industries

Distributing the existing industries in Uttaranchal according to their ownership it is revealed that both government as well as private industrialists have established industries in the region. Also a small proportion of (6 per cent) industries are established under the joint ownership of public and private concerns. However, over 73 per cent of the total existing industries in the Uttaranchal are established under the ownership of private concerns only. And the industries owned by Government constitute to be around 21 per cent. But the number of industries formed by State/Local Governments are observed significantly much higher than the industries established by Central Government. At the district level, it is pointed out that over one-third of the units in Pithoragarh and around 55 per cent units in Almora are established by the State Government while not even a single unit in Tehri Garhwal is formed by the Government. Comparing the proportions of units established by Government in Uttaranchal and in rest of U.P. it is witnessed that the State Government have preferred and given the priority in the establishment of industries in industrially backward region over the establishment of industries in rest of the U.P. Since the proportion of industries formed by Government at State level account for 7.11 per cent as against 21.28 per cent in Uttaranchal. Also the proportion of industries established under the joint ownership of public are found higher in latter area than the former one. However, the industries owned by private concerns are less in Uttaranchal (73 per cent) than at state level (91 per cent). This

indicates that the present levels of incentives and facilities which are being provided in favour of industrialisation in Uttaranchal are not influencing the private entrepreneurs to establish industry in the region. This could be either due to the fact that the present facilities are inadequate and insufficient or the procedure of availing the facilities and incentives are rather complicated and difficult or it may be that the basic infrastructural facilities required for the establishment and promotion of industries are not well developed in the region.

Table 4 : Ownership of Industries During 1985-86

District	Government				Private	Joint Private	Joint Public	Total
	Cen- tral	State/ Local	Joi- nt	Total				
Nainital	4	21	2	27 (22.88)	81 (68.64)	1 (0.84)	9 (7.72)	118(47.38) (100.00)
Almora	-	4	2	6 (54.54)	2 (18.18)	2 (18.18)	1 (9.09)	11(4.41) (100.00)
Pauri Garhwal	-	1	-	1 (11.11)	8 (88.88)	-	-	9(3.61) (100.00)
Tehri Garhwal	-	-	-	-	7 (100.0)	-	-	7(2.81) (100.00)
Dehradun	9	4	1	15 (14.85)	83 (82.17)	1 (0.99)	2 (1.98)	101(40.56) (100.00)
Pithora- garh	-	2	-	2 (66.66)	1 (33.34)	-	-	3(1.20) (100.00)
Uttaran- chal	13	35	5	53 (21.28)	182 (73.09)	4 (1.60)	12 (4.81)	249(100.0) (100.00)
U.P.	86	368	15	469 (7.11)	6033 (91.46)	22 (0.33)	72 (1.09)	6596 (100.00)

Source : Annual Survey of Industry, Economics and Statistics Division, State Planning Institute, Govt. of U.P., 1985-86.

Nature of Organisation in the Industries

The analysis related to the pattern of organisation in the industries located in Uttaranchal revealed that a much larger proportion of around three-fourths of the total industries are under the control and the management of either individual proprietor or the partnership concerns followed by around 21 per cent units that are run by public and private companies, 9 per cent under the corporations and remaining 8 per cent and 4 per

Table 5 : Nature of Organisation in the Industries

District	Proprietory	Partnership (Jt. Family)	Partnership Others	Public Ltd.	Private Ltd.	Corpn.	Cooperative Society	Others	Total
Nainital	10 (8.47)	45 (38.13)	14 (11.86)	10 (8.47)	13 (11.01)	14 (11.86)	6 (5.08)	6 (5.08)	118 (100.0)
Almora	-	1 (9.09)	-	1 (9.09)	2 (18.18)	2 (18.18)	1 (9.09)	4 (36.36)	11 (100.0)
Pauri	2 (22.22)	3 (33.33)	1 (11.11)	1 (11.11)	1 (11.11)	1 (11.11)	-	-	9 (100.0)
Tehri Garhwal	-	-	5 (71.42)	-	1 (14.28)	-	-	1 (14.28)	7 (100.0)
Dehradun	24 (23.76)	26 (25.74)	12 (11.88)	10 (9.90)	12 (11.88)	4 (3.96)	3 (2.97)	10 (9.90)	101 (100.0)
Pithoragarh	-	-	-	1 (33.33)	-	2 (66.66)	-	-	3 (100.0)
Uttaranchal	36 (14.45)	75 (30.12)	32 (12.85)	23 (9.23)	29 (11.64)	23 (9.23)	10 (4.01)	21 (8.43)	249 (100.0)
U.P.	351 (5.32)	2063 (31.27)	1921 (29.12)	389 (5.89)	984 (14.91)	175 (2.65)	90 (1.36)	223 (3.38)	6596 (100.0)

Source : Annual Survey of Industry, Economics and Statistics Division, State Planning Institute, Govt. of U.P., 1985-86.

cent of the industries are managed by cooperative societies and other unclassified concerns respectively. The proportions of units managed under different heads of organisations at state level also follow a similar pattern as is revealed in case of Uttaranchal. The district level analysis reveals that both the private partnership system as well as the individual entrepreneurship have least developed in Almora and Pithoragarh districts where most of the industries are controlled under the management of Limited Companies and the Cooperations, while it has highly developed in Nainital, Dehradun and Pauri districts.

Industrial Performance

Industrial performance may be evaluated in terms of a variety of criterion depending on the focus of one's analysis and the availability pattern of different industrial indicators. Industrial growth has generally been used in judging the efficiency of industry. However, Stigler (1963)³ and Kendrick (1964)⁴ have argued that the measures of performance such as profitability and different measures of costs and productivity should be considered in evaluating the industrial performance. In fact, the criteria which are most popularly used for evaluating industrial performance are value added, output growth, employment creation and its contribution in regional development. However, in recent studies of industrialisation, the criterion of effective protection rate has been employed by economists for evaluating the efficiency of industrial growth.⁵ Effective rate of production of a product is the ratio of its per unit value added at domestic prices to the per unit value added at international prices.⁶ The

efficiency of industrial sector can also be measured by computing the value of production on the value of per unit of investment employed in acquiring the particular value of produced.

Table 6 : Structure of Registered Industries Investment and Employment

(Value in '000 Rs.)

Year	Districts								
	Naini- tal	Almora	Pitho- ragarh	Tehri Garh- wal	Pauri Garh- wal	Dehra- dun	Uttar Kashi	Uttar- anchal	Uttar Pradesh
<u>Industry</u>									
1980-81	60	10	2	5	11	92	2	183	5480
1985-86	118	11	3	7	9	101	-	249	6596
<u>Investment</u>									
1980-81	31.06	4.00	2.00	0.37	0.61	58.83	0.17	97.04	4237.04
1985-86	234.86	4.71	2.91	1.59	0.82	91.87	-	336.74	9045.33
<u>Production</u>									
1980-81	53.92	2.94	0.93	1.19	2.31	65.50	0.77	127.54	3749.33
1985-86	205.79	4.81	2.08	2.93	2.67	98.78	-	317.06	9824.74
<u>Employment</u>									
1980-81	11525	618	186	64	257	8750	155	21550	765976
1985-86	13716	683	261	182	279	10074	-	25195	672071
<u>Value Added</u>									
1980-81	12.04	0.42	0.22	0.15	0.18	15.27	0.51	28.28	703.22
1985-86	23.39	0.72	0.21	0.39	0.30	9.27	-	34.28	2261.23
<u>Value Added per Worker</u>									
1980-81	14609	12424	-	29765	8752	21797	28763	17373	11571
1985-86	21365	17038	10827	32328	12915	11300	-	17036	41844
<u>Production/Investment</u>									
1980-81	1.73	0.73	0.46	3.21	3.78	1.11	4.52	1.31	0.88
1985-86	0.87	1.02	0.71	1.84	3.25	1.70	-	0.94	1.08

Source : Annual Survey of Industry, Economics and Statistics Division, State Planning Institute, U.P., 1980-81 and 1985-86.

In our study we have examined the industrial performance with the criterion of output, investment, employment, value added, efficiency of workers employed in the industrial sectors and the efficiency of the investment as measured by the value of production on the value of per unit of investment. The output criterion of industrial performance is simpler and more straight forward. Though there are conceptual and measurement problems,⁷ we can rely upon the output measure for analysing the performance of the industrial sector. The industrial production in Uttaranchal has increased by 149 per cent between 1980-81 and 1985-86 which is relatively lower than the state average (162 per cent). Across the districts the growth performance of industrial output varied from 16 per cent in Pauri Garhwal to 282 per cent in Nainital district. However, the growth performance of industries is found much higher for Uttaranchal (36 per cent) as compared to state as a whole (20 per cent) but a negative growth rate of 18 per cent is revealed in case of Pauri Garhwal as against the positive growth rate of 10 per cent each for Dehra Dun and Almora. And in remaining districts the industries have increased at a much higher rate than Uttaranchal as a whole or the state. In fact it increased as high as 97 per cent for Nainital followed by 50 per cent for Pithoragarh and 29 per cent for Tehri Garhwal.

Considering the pattern of investment in industrial sector it is revealed that per unit investment in Uttaranchal is less than the state average. However, the growth performance of investment in Uttaranchal is more than double than that of state average between 1980-81 and 1985-86. In some of the districts like Naini-

tal and Tehri Garhwal the corresponding growth figure is much higher than the average of Uttaranchal while it is lowest for Almora (18 per cent) and Dehradun (56 per cent). A striking picture is, however, emerging while we compare the growth performance of industrial production and investment rate at state level and in Uttaranchal. As the production performance for industries in Uttaranchal is less than the state average but the situation is reverse in terms of the growth performance of the investment pattern. Also the difference in the growth of investment in favour of Uttaranchal is relatively much higher than the production performance in favour of state level.

Table 7 : Industrial Performance in Uttaranchal

(Between 1980-81 & 1985-86)

Districts	Growth of ind-ustries	Growth in inv-estment	Growth in pro-duction	Growth in emp-loyment	Growth in value added	Growth in value added/worker	Growth in investment efficiency
Nainital	96.67	656.14	281.65	19.01	94.26	46.24	(-)49.71
Almora	10.00	17.75	63.60	10.51	71.42	37.13	39.72
Pithoragarh	50.00	45.50	123.65	40.32	(-)4.54	#	54.34
Tehri	28.57	329.72	146.21	184.37	160.00	8.61	(-)42.67
Pauri	(-)18.18	34.42	15.58	10.71	66.67	47.56	(-)14.02
Dehradun	9.78	56.16	50.80	15.13	(-)39.29	(-)48.15	(-) 3.60
Uttaranchal	36.06	247.01	148.59	16.91	19.06	(-)1.93	(-)28.24
U.P.	20.36	113.48	162.03	-12.25	221.55	261.62	22.72

Value added per worker for Pithoragarh district is not available

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The performance of industrial sector in providing employment opportunities in Uttaranchal is found quite satisfactory. Between 1980-81 and 1985-86, the employment in industrial sector has increased by 17 per cent. However, at state level, the industrial employment has declined by 12 per cent even after showing a much higher increase in the production. At the districts level, the highest increase in industrial employment has recorded in Tehri Garhwal (184 per cent) followed by 40 per cent in Pithoragarh, 19 per cent in Nainital and 15 per cent in Dehradun while only 10 per cent growth performance is found each for Almora and Pauri Garhwal districts.

The industrial performance as measured in terms of value added has been quite disappointing in the case of Pithoragarh and Dehradun where negative growth rates of 5 per cent and 39 per cent respectively registered between 1980-81 and 1985-86. However, for remaining districts the corresponding figures range from as high as 160 per cent in Tehri Garhwal to lowest at 67 per cent for Pauri Garhwal. Uttaranchal as a whole had a growth in value added of around 19 per cent as against 222 per cent for state level.

As per 1985-86 data, the value added per worker at state level is estimated much higher as compared to Uttaranchal but as per 1980-81 data the corresponding figure for Uttaranchal was relatively higher than the state average. Therefore, the negative growth rate of 1.93 per cent for Uttaranchal as against 262 per cent positive growth rate for state level in value added per worker has recorded. Even, for Dehradun the negative growth rate of over 48 per cent, as against the equal percentage of positive growth rate for Pauri Garhwal followed by 46 per cent for Nainital.

37 per cent for Almora and 9 per cent for Tehri Garhwal districts in value added is estimated.

The industrial performance is finally measured on the basis of value of production per unit of investment. On this basis, the positive performance of investment of 0.08 points level at state level as against a negative performance of 0.06 points level for Uttaranchal is estimated as per 1985-86 data. However, the position was completely reverse as per 1980-81 data. As the corresponding figure for Uttaranchal was 0.31 points level positive as against 0.12 points level negative for the state. At the districts level, as per 1985-86 data, positive performance of industrial investment was observed for most of the districts except Nainital and Pithoragarh. The increase was over three-folds in Pauri Garhwal and double in the case of Tehri Garhwal. However, between the period 1980-81 and 1985-86 a negative growth rate of 42 per cent and 14 per cent has been registered in the investment performance for Tehri Garhwal and Pauri Garhwal respectively. In Uttaranchal, the positive growth rate in industrial investment is observed only in case of district Almora (40 per cent) and Pithoragarh (54 per cent) between 1980-81 and 1985-86. In Uttaranchal as a whole a negative growth of 28 per cent as against 23 per cent positive growth at state level in investment efficiency has been observed during the same period.

Thus, the industrial performance as measured by the efficiency of industrial investment in Uttaranchal reveals the fact that though negative growth rate on per unit value of investment is found in most of the districts except Almora and

Pithoragarh but the rates of returns per unit of investment, in absolute terms, are still higher than the value of investment in all districts except Nainital and Pithoragarh. This trend, therefore, suggests that the additional investment in the expansion and development of industries can lead to the possibility of growth in industrialisation in Uttaranchal.

Conclusion

The Uttaranchal region, as has been pointed out, is basically a subsistence economy with agriculture its main base. Given the geographical conditions and the other peculiarities of the region it is not really conceivable to bring about a drastic transformation in the field of agriculture. However, since agricultural practices can not be discarded, the focus can easily be shifted away from the low output and less profitable food crops to cash crops such as vegetables and medicinal plants. These can be grown quite easily and will yield much more returns to the rural population. Two things would have to be given special attention if the scheme is to achieve success. First of all the government will have to ensure proper marketing of the cash crops so that the total produce of the farmers is sold out and at remunerative prices. The government either through its own effort, or through suitable agencies, must educate the villagers regarding the specific medicinal plants which can be easily grown in specific locations of the hill districts.

Secondly, once these medicinal plants are grown on a commercial basis small units to extract oil from them could be set up. This would give employment to more people of the area and

will add to the value of plants thereby resulting in higher incomes to the people and ultimately the region as a whole.

The other area where definite success can be achieved is in the development of orchards, there are a variety of fruits which are grown in the region during different seasons. They could be grown on a much larger area than at present and a planned and efficient marketing network could be developed leading to a favourable change in the levels of income of the people. These fruits would then provide a ready market for the horticulture based industry and this would give an added boost to the economy of the region. The Industry, of course, will have to be developed in a planned manner if the best results are to be achieved.

The situation, as it exists at present, is that the fruits of different types are grown all over the region and are available for nearly ten months during the year. Unfortunately, those which are grown in the remote and less accessible areas do not find a convenient market where they can be sold at a reasonable price. Most of it therefore is either utilised for domestic consumption or goes waste. Consequently there is hardly any incentive to grow fruits on a large scale. Whatever fruits do reach the market is procured by contractors on a pre-harvest contract basis and so the grower gets a price which generally is around 15-20 per cent of the market price.⁸

The government should initiate a two pronged policy for the development of the horticulture industry. On the one hand it should ensure a minimum support price to the growers and ensure

that their produce will find a ready market. On the other hand, it should either on its own or through co-operatives or through necessary incentives to the private enterprise to develop fruit processing units. In and around the main fruit growing belts small canning and processing units may be established which can produce fruit juice or fruit pulp. This can then be sent for final processing to the large plants which can be suitably located in areas where they do not pose any environmental hazard and also where the infrastructure facilities are better available. The ideal location would be the plain areas of this region. The development of this industry would not only ensure higher income and increased employment opportunities to the local people but would contribute very positively towards strengthening the economic base of the Uttaranchal region itself.

It is true that a shift from agriculture to plantation of fruits would mean hardship to the people during the initial phase since fruit trees grown will take some time to develop before they can bear fruits and earn an income. Despite the fact that only traditional methods of cultivation are being used and yields are poor, the people nevertheless are able to grow enough to meet their own requirements. Thus they will have to be provided with some incentives if they are to shift to plantation of fruits. In the first case it is possible to carry out inter cropping on areas where fruit trees are grown. The yields will, of course, be lower but at least a part of their requirements will be met. The remaining part will have to be met by providing a subsidy by the Government till such a time that the growers start getting a steady stream of income from the sale of fruits. A study reveals

that per hectare returns are 53.20 per cent higher on fruit growing as compared to agriculture.⁹

Growing of fruits and vegetables as well as medicinal plants would mean a relatively smaller area for the cultivation of foodgrains. The public distribution system will have to be revamped and the government will have to ensure that enough foodgrains are distributed through ration shops at controlled prices such that the food requirements of the rural masses are fully met. Any shortcoming in this field would force the cultivator to fall back on the cultivation of foodgrains and if this happens, the very purpose of trying to promote development of high value cash crops will be defeated.

Another area of development in Uttaranchal are the household industries. These are of two types. The first are those which are directly or indirectly related to agriculture such as oil processing and blacksmithy. These, however, have a limited scope since the agricultural sector itself does not have much of a potential for development. The second group of industries are those which are based on local as well as non-local raw materials. Prominent among these is the spinning and weaving of wollen yarn. This is a very old and traditional industry of this region having concentration in Pithoragarh, Almora, Uttar Kashi, Chamoli and Dehradun. There was a time when the yarn was easily available from Tibet and so the industry was operating on a fairly large scale. Ever since Tibetan yarn has stopped coming the craftsmen engaged in this activity have been faced with the problem of shortage of yarn. The yarn provided through the Khadi Board and

Gandhi Ashram is currently being processed although production is below the potential of the region. The government should make efforts to provide more wollen yarn. Besides this efforts can also be made to develop spinning and weaving of cotton yarn as well. For this a weavers cooperative society may be developed.

The hills, as we know, have always been centres of tourists attraction and tourists visit the area almost throughout the year except during the monsoon season. If the handloom sector is fully developed it will result in much higher earnings since these products will be readily bought by the numerous tourists who visit the area.

The greatest advantage of the modern industrial sector has been the fact that many industries do not require any local raw material and that they do not even pose an environmental hazard. The industries of this nature which immediately spring to mind are the electrical and electronic equipment manufacturing units and some machine parts units. Considering the nature of the hill region and the present state of infrastructure development, it may not be worthwhile to think in terms of big units. Moreover, a big unit would mean location at a given point and so the benefits of employment and income would be reaped by only a few residing in and around the area. Instead, it would be much better to set up a number of small scale industries dispersed over the entire region as such. In the past some efforts were made in this direction and these areas witnessed the establishment of a unit of the HMT, UPTRON, HINDUSTAN PHOTO FILMS, etc. Unfortunately not much efforts were made to give these industries the desired boost. It

is, therefore, time to give another thought towards the development of these modern industries.

For the industrial sector to develop, it is essential that the government takes up an initiative towards the development of social and economic infrastructure in the region. This will provide the much needed incentive to the entrepreneurs to set up units in Uttaranchal. Moreover, development of social infrastructure will ensure human resource development and the workforce will constitute not merely of unskilled persons but also skilled and semi-skilled. Training programmes could be developed for promoting entrepreneurial abilities among local people. Thus the avenues of employment open to the local residents will not be limited to simple wage earner category alone. Instead, even the higher technical and managerial job opportunities will be open to them along with avenues of self-employment. One of the criticisms levelled against the industrial sector has been that it provides better employment opportunities to workers from outside the region. This criticism does not hold fully since at present enough skilled manpower is hardly available in the hills. Once vocational training institutions begin to turn out skilled manpower, they will then have an equal opportunity to aspire for these jobs.

We may, therefore, conclude that the key to the development of Uttaranchal lies in the ultimate development of the industrial sector and the simultaneous development of social and economic infrastructure facilities, and, of course, an ultimate shift from agriculture to horticulture and some selected cash crops.

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